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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/693,652	10/21/2000	Jerrell P. Hein	75622.P0019	7280

7590
William D Davis
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11/05/2003

EXAMINER

NGUYEN, DUC MINH

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 11/05/2003

2

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/693,652

Applicant(s)

HEIN ET AL.

Examiner

Duc Nguyen

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17, an inverted first sense current, the inverted first current, a second current, the second sense current are inconsistent.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenbaum et al (5,323,461).

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Consider claim 1. Rosenbaum teaches a method comprising providing subscriber loop pull-down circuitry (10-11) operating in a first voltage domain (on-hook), wherein the subscriber loop pull-down circuit decreases at least one of a tip and a ring line current (approx. $< 13\text{mA}$) in response to a corresponding pull-down control signal (control signals 17-18); and providing control circuitry operating in a second voltage domain (off-hook) wherein the first and second voltage domains are substantially distinct (off-hook current $> 13\text{mA}$, on-hook current $< 13\text{mA}$; col. 5, ln. 29-47), wherein the control circuitry (control circuit 15; col. 2, ln. 5-68) varies the pull-down control signal in response to a sensed current (sensing circuit 12) corresponding to an associated one of a tip-pull down current and a ring pull-down current (col. 5, ln. 22 to col. 6, ln. 68; col. 8, ln. 39-65).

Consider claims 2-3. Rosenbaum further teaches a pull-up circuitry (10-11; mode 2, col. 5, ln. 29-47), wherein the pull-up circuitry increases the at least one of the tip and ring currents (to 20-50mA) in response to a corresponding pull-up control signal provided by the control circuitry (control signals 17-18).

Consider claim 4. The feedback isolation stage is met by the (line 16 and col. 3, ln. 51-63).

Consider claim 5. The control isolation stage is met by the controlled voltage generator (14).

Consider claim 6. Rosenbaum teaches a method comprising providing subscriber loop pull-down circuitry (10-11) operating in a first voltage domain (on-hook), wherein the subscriber

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loop pull-down circuit decreases at least one of a tip and a ring line current (approx. $< 13\text{mA}$) in response to a corresponding pull-down control signal (control signals 17-18); and providing control circuitry operating in a second voltage domain (off-hook) wherein the first and second voltage domains are substantially distinct (off-hook current $> 13\text{mA}$, on-hook current $< 13\text{mA}$; col. 5, ln. 29-47), wherein the control circuitry (control circuit 15; col. 2, ln. 5-68) varies the pull-down control signal in response to a sensed current (sensing circuit 12) corresponding to an associated one of a tip-pull down current and a ring pull-down current (col. 5, ln. 22 to col. 6, ln. 68; col. 8, ln. 39-65). Rosenbaum further teaches a control isolation stage (control voltage generator 14) coupled to provide the pull-down control signal (BR) from the control circuitry (15) to the pull-down circuitry (10); a feedback isolation stage (sensing current 12 and feedback path 16).

Consider claim 19. Rosenbaum teaches a subscriber line interface circuit comprising a linefeed driver (10) responsive to pull-up and pull down control signals (BR) to vary at least a selected one of a tip and ring current of a subscriber loop (col. 5, ln. 22 to col. 6, ln. 68; col. 8, ln. 39-65); and a signal processor (15) sensing a pull-down current of the selected one of the tip and ring lines into a battery feed mode, the signal processor generating pull-down control signals (17) for the selected current in response to the sensed pull-down current, wherein the linefeed driver does not reside within a same integrated circuit package as the signal processor (fig. 1).

Consider claim 20. Col. 3, ln. 51-63 reads on the limitations of claim 20.

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5. Claims 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Embree et al (4,473,719).

Consider claims 17-18. Embree teaches an apparatus comprising a current mirror (current summer 115, fig 1 and 3; col. 10, ln 66 to col. 11, ln. 22); first sense current (TC1 or RC1); transimpedance amplifier (304 and its associated circuitry; see fig. 3; col. 4, ln. 50 to col. 6, ln. 68); second current (Vref); a differential amplifier (col. 5, ln. 21-40); a line driver (111 and 113); and linefeed driver control circuit (116). Col. 3, ln. 40-61 reads on the remaining limitations of claims 17-18.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenbaum et al (5,323,461) in view of Embree et al (4,473,719).

Consider claim 7. Rosenbaum does not disclose the detail circuit of the pull-down circuitry.

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Fig. 4 of Embree shows a pull-down transistor (111) coupled to the subscriber line (R) and a battery feed node (-48V) through a sense impedance (RS).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Embree into the teachings of Rosenbaum in order to prevent false hook status indications caused by large longitudinal currents which may be induced in the communication pair.

Consider claims 8-15. The current sensor illustrated in fig. 2 of Embree reads on the limitations of claims 8-15.

Consider claim 16. Rosenbaum in view of Embree does not explicitly teach the use of a FET; however, it was well known to one skilled in the art to use FETs, MOSFETs in place of bipolar junction transistor in order to achieve faster switching, and low power consumption.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Nguyen whose telephone number is (703) 308-7527.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Kuntz, can be reached on (703) 305-4708.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to:

703-872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

October 23, 2003


DUC NGUYEN
PRIMARY EXAMINER